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# GROWING TURNIPS.

JAMES WILSON.

Scarcity of feed of a succulent nature, for milking cows, during the fall and early winter, suggested to us the growing of soft turnips for that purpose. Our dry, warm climate is not suited for turnips planted in the spring. They mature early and become rank flavored and unpalatable. European farmers grow them successfully, from spring planting, in moist, cool climates, where the maize plant will not mature, and where the entire summer season is necessary to develop them. Fairly good success from planting them later, and fairly good results from feeding them to dairy cows, induced us to experiment, during the summer of 1894, with later planting. Iowa farmers have usually sown turnips broadcast, which prevents cultivation. Drouths that are common with us generally evaporate the moisture from the surface soil, and few turnips are gathered. Our people seldom depend on turnips as part of a fall or winter ration for domestic animals, but the growth of dairying requires succulent feed at all seasons, and the soft turnip is valuable for this purpose between summer and winter conditions.

The rainfall of 1894, between June 23 and August 10, was so slight that it had no effect on crops. Previous to June 23 we prepared three acres of land for turnips, by plowing and thoroughly pulverizing with the disc, and light surface harrows, making a dust mulch four inches deep, that we maintained by repeated harrowings, so as to prevent the evaporation of the moisture in the subsoil, that was moist twenty inches deep. Below this twenty-four inches the soil was dry, so that capillarity could not bring up moisture from beneath. When the June 23d rain came it wetted this four inches of mulch thoroughly, and during the 24-25 we planted the seed of the strap-leaved purple top turnip. We planted it in rows 28 inches apart, on the level, and from 2.5 to 3 inches deep. The plants came up in a few days and we began cultivating,

to prevent evaporation. Four inches of the surface soil dried out rapidly. We thinned the plants to 12 inches apart and cultivated once a week until August 10, when it rained again sufficiently to completely wet the four inches of dust mulch. The turnips grew slowly during the forty-eight days of drouth and when the August rain came they were about the size of hen's eggs. After this we only cultivated once, as the turnips had covered the ground so that their shade prevented evaporation. At harvesting time they weighed twenty-eight tons to the acre with the tops on, and twenty-four tons an acre trimmed. They were very tender and sweet, and several tons were sold to families for table use. We used a light one-horse garden cultivator, with a harrow bolted on behind with light straight steel teeth, set two inches apart, sent us for trial by Mr. Eli Elliot, of West Liberty. The implement cultivated about four inches deep and left the surface loose and finely pulverized. Beneath this dust mulch the ground, at the time the turnip seed was planted, was damp and mellow; it gradually became drier and harder toward the end of the forty-eight day drouth. The turnips grew on the surface, being embedded about an inch in the soil, and having a tap-root going down four inches, where lateral roots spread out through the moist earth below the dust surface. The cultivator attachment was set to run close up to the plants; as they grew in straight rows this was practical. Without this continual cultivation the ground would have cracked open, permitting evaporation to reach the moist subsoil. A crop of turnips grown on another part of the college farm, sown broadcast and consequently not cultivated, did not grow larger than hen's eggs, and was not harvested.

We attribute our success in growing so good a crop, in so dry a year, to the cultivation of the surface soil before sowing the seed, as much as afterward. There was a severe drouth before the June 23 rain; we prevented the loss of moisture through evaporation by reducing the surface four inches to dust condition before June 23.

## CABBAGES.

The Experiment Station grew a crop of 10,000 heads of cabbages that were transplanted immediately after the June 23d rain. They were grown on land prepared as that for the turnips was, cultivated before the rain so as to save the moisture in the subsoil until the surface soil would be wetted. They were cultivated with the same implement as the turnips were, once a week, until the August 10th rain came, and afterward until they shaded the ground. They matured as well as in years when a normal amount of rain falls.

## SWEET CORN.

A crop of two acres of late sweet corn was planted June 15th, but did not sprout until the June 23d rain fell. The plants came up promptly after the rain, and were cultivated once a week for forty-eight days until the August 10th rain fell. The plants made a continuous but slow growth during this protracted drouth, the latter part of which scorched the field corn, requiring it to be cut and shocked to save it for fodder. The maintaining of a dust mulch kept the crop green, so that it made a full crop, well eared.

## LATE POTATOES.

Half an acre of late potatoes was planted June 10th. The ground was so dry that they had not appeared above ground when the June 23d rain fell. They were cultivated once a week during the forty-eight day drouth as the turnips, cabbage and sweet corn were, and made an average crop of medium sized potatoes, but were not entirely matured at digging time. These four crops would all have been heavier had more rain fallen, as other conditions were favorable for heavy yields; but, where the customary cultivation was given like crops, or no cultivation, they either dried up or made very light crops. Over one hundred acres of corn was grown on the college farm that had four and five cultivatings, and no acre of the whole yielded as heavily as the sweet corn that was cultivated every week. We adopted the practice of cultivating every garden crop every week, and carried all crops planted successfully through the severest drouth the

state has experienced for thirty-eight years. Tomatoes taken from pots and set out early in May bore full crops in September, from cultivation once a week during four months. There is every indication that the ground will not be wet for the coming year deeper than it was last year. It was not wet deeper than two feet when winter set in ; the snow fall has been very light ; if we do not have more rain fall than we had last year the coming crop will have what moisture is found in the soil when spring opens, in addition to what falls ; our ability to conserve what moisture the soil has when spring comes will measure the volume of our crops. We venture to suggest the value of such cultivation as will maintain a dust mulch on the surface at all times until the crop is matured. Whatever the depth of this dust we would not cultivate below it after the plant roots have established themselves.